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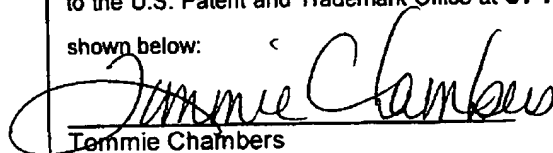
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NAME OF INVENTOR(S): Nafie	RECEIPT DATE & SERIAL NO.: Serial No.: 09/715,668 Filing Date: 11/16/2000
TITLE OF INVENTION: RETRANSMISSION TECHNIQUES FOR ENHANCED PERFORMANCE IN FADING WIRELESS COMMUNICATION CHANNELS	
TI FILE NO.: TI-30627	DEPOSIT ACCT. NO.: 20-0668
FAXED: <u>12-6-05</u> DUE: 12/29/2005 ATTY/SECY: WDS/tic	

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Nafie

Docket No: TI-30627

Serial No: 09/715,668

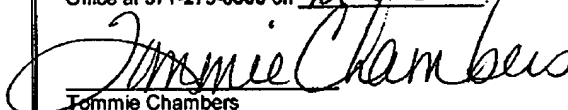
Examiner: Zheng, Eva Y.

Filed: 11/16/2000

Art Unit: 2634

For: RETRANSMISSION TECHNIQUES FOR ENHANCED PERFORMANCE
IN FADING WIRELESS COMMUNICATION CHANNELS**APPEAL BRIEF PURSUANT TO 1.192(c)**Assistant Commissioner for Patents
Washington, DC 20231

Dear Sir:

CERTIFICATION OF FACSIMILE TRANSMISSIONI hereby certify that the following papers are being
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Tommie Chambers

The following Appeal Brief is respectfully submitted in connection with the above identified application in response to the final Office Action mailed February 8, 2005, the Advisory Action mailed May 18, 2005, and the Notice of Non-Complaint Appeal Brief mailed 11/29/2005 .

REAL PARTY IN INTEREST

The real party in interest is Texas Instruments Incorporated.

RELATED APPEALS AND INTERFERENCES

Appellants legal representative knows of no appeals or interferences which will be directly affected, or have a bearing on the Board's decision.

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STATUS OF THE CLAIMS

Claims 1-29 were originally filed, and Claims 28 and 29 have been cancelled. Consequently, the subject matter of the instant appeal is the rejection of Claims 1-27.

STATUS OF AMENDMENTS

A response after final was filed on April 21, 2005, amending Claims 7 and 21 in order to overcome objections of the Examiner. The Examiner indicated in the Advisory Action that the amendment would not be entered.

SUMMARY OF THE CLAIMED SUBJECT MATTER

A bit sequence is transmitted over a wireless communication channel a plurality of times, and the receiving end can determine the transmitted bit sequence (1) by making a majority logic decision with respect to the received bit sequences or (2) based on the received bit sequences and corresponding quality information associated with the respective transmissions. Quality indicators associated with the respective transmissions can be compared or otherwise used in combination to determine the received bit sequence. The invention advantageously applies the effect of repetition coding across a plurality of transmissions, and thereby provides more gain in fading channels.

FIGURE 10 diagrammatically illustrates pertinent portions of exemplary embodiments of a wireless packet receiving station according to the invention. The packet receiving station of FIGURE 10 includes a transmitted bit sequence determiner 100 which receives (via an unillustrated wireless communications interface) N received bit sequences which each correspond to a transmitted bit sequence that has been included in each of N packets transmitted, for example, by the transmitting station of FIGURE 1. The transmitted bit sequence determiner also receives communication quality information respectively corresponding to the N packet transmissions (and thus

to the N received bit sequences). The transmitted bit sequence determiner 100 then makes a determination as to the transmitted bit sequence, based on the N received bit sequences and the corresponding communication quality information. In some embodiments, the determiner 100 compares the communication quality information associated with the N received bit sequences, and thereby makes the determination of the transmitted bit sequence. In other embodiments, the determiner 100 uses the communication quality information associated with the N received bit sequences to combine the N received bit sequences and thereby make the determination of the transmitted bit sequence.

FIGURE 11 illustrates exemplary operations which can be performed by the wireless packet receiving station illustrated in FIGURE 10. At 110, the received bit sequences are produced. The communication quality information associated with the received bit sequences is obtained at 111.

GROUND OF REJECTION

The first issue on appeal is whether or not Claims 1-3, 5, 6, 10-12, 16, 18, 19, 28, and 29 are unpatentable under 35 U.S.C. § 102(e) as being anticipated by Hellmark; secondly whether Claims 16, 23, 24, and 25 are unpatentable under 35 U.S.C. § 102(e) as being anticipated by Madkour; and lastly whether Claims 4 and 7 are unpatentable under 35 U.S.C. § 103 as being unpatentable over Hellmark in view of the alleged admitted prior art (AAPA).

ARGUMENTS

Hellmark does not disclose or suggest the presently claimed invention including the method step of making a determination of the desired bit sequence based on a combination of the received bit sequences and the communication quality information in independent Claim 1, albeit defined as a determiner coupled to the inputs for making a

determination of desired bit sequence based on a combination of the received bit sequences and the communication quality information in independent Claim 16.

The Honorable Board's attention is directed to column 7, lines 35-45 where Hellmark discloses that the resolution used in the ADC's 620 and in the following signal processing can be selected based on the received signal quality, for example the signal to noise ratio or the SIR.

The received digital quality is not combined with the received bit sequence.

Likewise, Madkour does not disclose or suggest the presently claimed invention including making a determination of the desired bit sequence based on a combination of the received bit sequences and the communication quality information as defined in the various forms in independent Claims 1 and 16.

The Honorable Board's attention is directed to column 9, lines 50-60 of Madkour where Madkour discloses a baseband interference canceler modifying the original baseband signal based on the estimate of the interfering signal component.

The interfering signal component is an estimate and not a communication quality information.

Whether or not AAPA discloses a bluetooth device or whether one of ordinary skill in the art would consider modifying either Hellmark or Madkour is of no moment since the resulting construction would still in no way disclose or suggest the presently claimed invention.

Consequently, it is respectfully submitted that Claims 1-27 patentably distinct over the applied references.

CONCLUSION

For the foregoing reasons, Appellants respectfully submit that the Examiner's final rejection of the above mentioned claims under 35 U.S.C. § 102 and 35 U.S.C. § 103 is not properly founded in law, and it is respectfully requested that the Board of Patent Appeals and Interferences so find and reverse the Examiner's rejections.

To the extent necessary, the Appellants petition for an Extension of Time under 37 CFR 1.136. Please charge any fees in connection with the filing of this paper, including extension of time fees, to the deposit account of Texas Instruments Incorporated, Account No. 20-0668.

Respectfully submitted,



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APPENDIX

Claim 1 (previously presented): A method of communicating a desired bit sequence over a wireless communication link, comprising:

including the desired bit sequence in each of a plurality of transmissions over the wireless communication link;

producing in response to each of the plurality of transmissions a received bit sequence corresponding to the desired bit sequence;

obtaining information indicative of communication quality associated with each of the plurality of transmissions; and

making a determination of the desired bit sequence based on a combination of the received bit sequences and the communication quality information.

Claim 2 (original): The method of Claim 1, wherein said obtaining step includes estimating signal-to-noise ratios respectively associated with the plurality of transmissions.

Claim 3 (original): The method of Claim 1, including transmitting the plurality of transmissions on respectively different transmission frequencies.

Claim 4 (original): The method of Claim 1, wherein the wireless communication link is a Bluetooth link.

Claim 5 (original): The method of Claim 1, wherein said producing step includes decoding each of a plurality of packets which are respectively included in the plurality of transmissions and in each of which is included the desired bit sequence.

Claim 6 (original): The method of Claim 1, wherein said making step includes providing in response to the received bit sequences and the communication quality information a plurality of predetermined probabilities that the respective received bit sequences correspond to a predetermined bit sequence that could possibly be the desired bit sequence.

Claim 7 (previously presented): A method of communicating a desired bit sequence over a wireless communication link, comprising:

including the desired bit sequence in each of a plurality of transmissions over the wireless communication link;

producing in response to each of the plurality of transmissions a received bit sequence corresponding to the desired bit sequence;

obtaining information indicative of communication quality associated with each of the plurality of transmissions; and

making a determination of the desired bit sequence based on the received bit sequences and the communication quality information,

wherein said making step includes providing in response to the received bit sequences and the communication quality information a plurality of predetermined probabilities that the respective received bit sequences correspond to a predetermined bit sequence that could possibly be the desired bit sequence, and

wherein said making step includes multiplying the plurality of predetermined probabilities together to produce a product.

Claim 8 (original): The method of Claim 7, wherein said making step includes performing said probability providing step and said multiplying step for a plurality of predetermined bit sequences that could possibly be the desired bit sequence in order to produce a plurality of products respectively corresponding to the plurality of predetermined bit sequences.

Claim 9 (original): The method of Claim 8, wherein said making step includes making a determination that the predetermined bit sequence corresponding to the largest of the products is the desired bit sequence.

Claim 10 (original): The method of Claim 1, wherein said obtaining step includes obtaining a plurality of correlation values respectively associated with the plurality of transmissions.

Claim 11 (original): The method of Claim 10, wherein said making step includes making a determination that the received bit sequence corresponding to the largest of the correlation values is the desired bit sequence.

Claim 12 (original): The method of Claim 10, wherein said making step includes combining the received bit sequences with the corresponding correlation values.

Claim 13 (previously presented): A method of communicating a desired bit sequence over a wireless communication link, comprising:

including the desired bit sequence in each of a plurality of transmissions over the wireless communication link;

producing in response to each of the plurality of transmissions a received bit sequence corresponding to the desired bit sequence;

obtaining information indicative of communication quality associated with each of the plurality of transmissions; and

making a determination of the desired bit sequence based on the received bit sequences and the communication quality information,

wherein said obtaining step includes obtaining a plurality of correlation values respectively associated with the plurality of transmissions.

wherein said making step includes combining the received bit sequences with the corresponding correlation values, and

wherein said combining step includes multiplying each of the received bit sequences by one of the corresponding correlation value and the square of the corresponding correlation value to produce a plurality of multiplication results.

Claim 14 (original): The method of Claim 13, wherein said combining step includes summing the multiplication results together to produce a summation result, said making step including decoding the summation result and making a determination that the decoded summation result is the desired bit sequence.

Claim 15 (previously presented): A method of communicating a desired bit sequence over a wireless communication link, comprising:

including the desired bit sequence in each of a plurality of transmissions over the wireless communication link;

producing in response to each of the plurality of transmissions a received bit sequence corresponding to the desired bit sequence;

obtaining information indicative of communication quality associated with each of the plurality of transmissions; and

making a determination of the desired bit sequence based on the received bit sequences and the communication quality information,

wherein the desired bit sequence and the received bit sequences each include only a single bit.

Claim 16 (previously presented): A wireless communication apparatus, comprising:

a first input for receiving a plurality of received bit sequences respectively produced in response to a plurality of transmissions received via a wireless communication link, each of said received bit sequences corresponding to a desired bit sequence included in each of said plurality of transmissions;

a second input for receiving information indicative of communication quality associated with each of the plurality of transmissions; and

a determiner coupled to said inputs for making a determination of the desired bit sequence based on a combination of the received bit sequences and the communication quality information.

Claim 17 (original): The apparatus of Claim 16, provided as a Bluetooth device.

Claim 18 (original): The apparatus of Claim 16, wherein each of said plurality of transmissions includes a packet having therein the desired bit sequence, and including a decoder coupled to said first input for receiving said packets via the wireless communication link and for decoding said packets to produce the respective bit sequences.

Claim 19 (original): The apparatus of Claim 16, wherein said determiner is operable for providing in response to the received bit sequences and the communication quality information a plurality of predetermined probabilities that the respective bit sequences correspond to a predetermined bit sequence that could possibly be the desired bit sequence.

Claim 20 (previously presented): A wireless communication apparatus, comprising:

a first input for receiving a plurality of received bit sequences respectively produced in response to a plurality of transmissions received via a wireless communication link, each of said received bit sequences corresponding to a desired bit sequence included in each of said plurality of transmissions;

a second input for receiving information indicative of communication quality associated with each of the plurality of transmissions; and

a determiner coupled to said inputs for making a determination of the desired bit sequence based on the received bit sequences and the communication quality information,

wherein said determiner is operable for providing in response to the received bit sequences and the communication quality information a plurality of predetermined probabilities that the respective bit sequences correspond to a predetermined bit sequence that could possibly be the desired bit sequence, and

wherein said determiner is operable for multiplying the plurality of predetermined probabilities together to produce a product.

Claim 21 (original): The apparatus of Claim 20, wherein said determiner is operable to provide, for each of a plurality of predetermined bit sequences that could possibly be the desired bit sequence, a plurality of predetermined probabilities that the

respective received bit sequences correspond to the predetermined bit sequence, said determiner further operable to multiply together the plurality of predetermined probabilities associated with each of said predetermined bit sequences in order to produce a plurality of products respectively corresponding to the plurality of predetermined bit sequences.

Claim 22 (original): The apparatus of Claim 21, wherein said determiner is operable for making a determination that the predetermined bit sequence corresponding to the largest of the products is the desired bit sequence.

Claim 23 (original): The apparatus of Claim 16, including a correlator coupled to said second input for producing a plurality of correlation values respectively associated with said plurality of transmissions and providing the correlation values to said second input.

Claim 24 (original): The apparatus of Claim 23, wherein said determiner is operable for making a determination that the received bit sequence corresponding to the largest of the correlation values is the desired bit sequence.

Claim 25 (original): The apparatus of Claim 23, wherein said determiner includes a combiner coupled to said first and second inputs for combining the received bit sequences with the corresponding correlation values.

Claim 26 (previously presented): A wireless communication apparatus, comprising:

a first input for receiving a plurality of received bit sequences respectively produced in response to a plurality of transmissions received via a wireless communication link, each of said received bit sequences corresponding to a desired bit sequence included in each of said plurality of transmissions;

a second input for receiving information indicative of communication quality associated with each of the plurality of transmissions;

a determiner coupled to said inputs for making a determination of the desired bit sequence based on a combination of the received bit sequences and the communication quality information;

including a correlator coupled to said second input for producing a plurality of correlation values respectively associated with said plurality of transmissions and providing the correlation values to said second input,

wherein said determiner includes a combiner coupled to said first and second inputs for combining the received bit sequences with the corresponding correlation values, and

wherein said combiner is operable for multiplying each of the received bit sequences by one of the corresponding correlation value and the square of the corresponding correlation value to produce a plurality of multiplication results.

Claim 27 (previously presented): A wireless communication apparatus, comprising:

a first input for receiving a plurality of received bit sequences respectively produced in response to a plurality of transmissions received via a wireless communication link, each of said received bit sequences corresponding to a desired bit sequence included in each of said plurality of transmissions;

a second input for receiving information indicative of communication quality associated with each of the plurality of transmissions; and

a determiner coupled to said inputs for making a determination of the desired bit sequence based on the received bit sequences and the communication quality information,

a correlator coupled to said second input for producing a plurality of correlation values respectively associated with said plurality of transmissions and providing the correlation values to said second input,

wherein said determiner includes a combiner coupled to said first and second inputs for combining the received bit sequences with the corresponding correlation values,

wherein said combiner is operable for multiplying each of the received bit sequences by one of the corresponding correlation value and the square of the corresponding correlation value to produce a plurality of multiplication results, and

wherein said combiner is operable for summing the multiplication results together to produce a summation result, said determiner including a decoder coupled to said combiner for decoding the summation result.

Claims 28 and 29 (cancelled).

EVIDENCE APPENDIX

Appellants are submitting no items of evidence.

RELATED PROCEEDINGS APPENDIX

Appellants have no submission for the Related Proceeding Appendix.